

(FILE 'HOME' ENTERED AT 16:35:02 ON 30 MAY 2003)

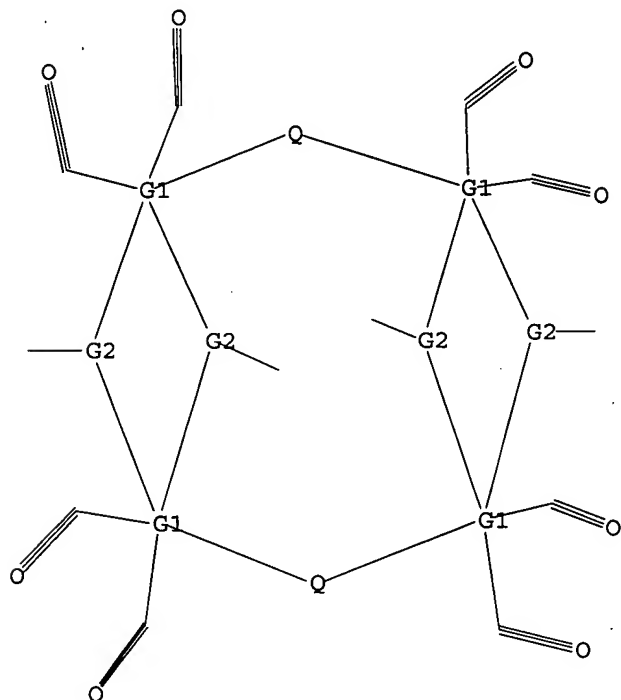
FILE 'REGISTRY' ENTERED AT 16:35:11 ON 30 MAY 2003

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



G1 Cr,Fe,Mn,Mo,Os,Re,Ru,W

G2 O,S,Se,Te

Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 16:35:38 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 4570 TO ITERATE

21.9% PROCESSED 1000 ITERATIONS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

0 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED ITERATIONS: 87348 TO 95452
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 16:35:44 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 92716 TO ITERATE

100.0% PROCESSED 92716 ITERATIONS (40 INCOMPLETE)
SEARCH TIME: 00.00.13

40 ANSWERS

L3 40 SEA SSS FUL L1

=> fil caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

148.55

148.76

FILE 'CAPLUS' ENTERED AT 16:36:09 ON 30 MAY 2003

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FILE COVERS 1907 - 30 May 2003 VOL 138 ISS 23

FILE LAST UPDATED: 29 May 2003 (20030529/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3

L4 25 L3

=> d 1-25 bib abs

L4 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 2001:27634 CAPLUS

DN 134:237606

TI Synthesis, structure, and reactivity of .eta.1- and .eta.3-allyl rhenium carbonyls

AU Aechter, Bernd; Polborn, Kurt; Beck, Wolfgang

CS Department Chemie, Ludwig-Maximilians-Universitat, Munchen, Germany

SO Zeitschrift fuer Anorganische und Allgemeine Chemie (2001), 627(1), 43-54

CODEN: ZAACAB; ISSN: 0044-2313

PB Wiley-VCH Verlag GmbH

DT Journal

LA German

OS CASREACT 134:237606

AB In (.eta.3-C3H5)Re(CO)4 one CO ligand can be substituted by PPh3, pyridine, isocyanide, and PhCN. Similar reactions with Ph2PHCH:CHPPh2, 1,1'-bis(diphenylphosphino)ferrocene and 1,2-di-4-pyridinylethane gave dinuclear ligand-bridged complexes. The .eta.3-.eta.1 conversion of the allyl ligand occurs on reaction of (.eta.3-C3H5)Re(CO)4 with the bidentate ligands Ph2PH(CH2)nPHPh2 (n = 2-3) and with 2,2'-bipyridine (L-L), which gives (.eta.1-C3H5)Re(CO)3(L-L). By reaction of (.eta.3-C3H5)Re(CO)4 with H2C(PHPh2)2, the allyl group is protonated, and, upon elimination of propene, (OC)3Re(Ph2PCHPPh2)(.eta.1-Ph2PCH2PPh2) (I) with a diphosphinomethanide ligand is formed. On heating solns. of (.eta.3-C3H5)Re(CO)4 and (.eta.3-C3H5)Re(CO)3(CNC6H3-2,5-Me2) in MeOH, MeO-bridged Re4(CO)12(OH)(OMe)3 and Re2(CO)4(CNC6H3-2,5-Me2)4(.mu.-OMe)2 (II) were isolated. The crystal structures of (.eta.3-C3H5)Re(CO)3(CNCH2SiMe3), [(eta.3-C3H5)(OC)3Re]2[.mu.-bis-(diphenylphosphino)ferrocene], (.eta.1-C3H5)Re(CO)3(bpy), I, II, and

(OC)3Re[Ph₂P(H₂)3PPh₂]Cl were detd. by x-ray diffraction.
RE.CNT 136 THERE ARE 136 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2003 ACS
AN 1998:609369 CAPLUS
DN 129:339049
TI Carbidoheptarhenate Cluster Complexes of Mercury with Hydrosulfide or Functionalized Thiolate Ligands
AU Brand, Udo; Shapley, John R.
CS Department of Chemistry, University of Illinois, Urbana, IL, 61801, USA
SO Inorganic Chemistry (1998), 37(21), 5697-5699
CODEN: INOCAJ; ISSN: 0020-1669
PB American Chemical Society
DT Journal
LA English
AB The mercury carbidoheptarhenate cluster complexes [PPh₄]₂[Re₇C(CO)₂₁HgSR] (R = H, CH₂CH₂NH₂, CH₂CH₂CO₂H, 4-pyridyl) and [PPh₄][Re₇C(CO)₂₁HgSR] (R = 4-pyridinium) were prepd. from the reactions of [PPh₄]₂[Re₇C(CO)₂₁HgOH] with H₂S and the functionalized thiolates cysteamine, 3-mercaptopropionic acid and 4-mercaptopyridine, resp. [PPh₄]₂[Re₇C(CO)₂₁HgSH] was characterized by x-ray crystallog. (triclinic, space group P.hivin.1, R₁ = 0.0604). The [Re₇C(CO)₂₁HgSH]₂- cluster showed the expected framework of a 1,4-bicapped octahedron with the Hg on the opposite face of the octahedral Re₆C core from the capping Re(CO)₃ group.
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2003 ACS
AN 1998:171881 CAPLUS
DN 128:238470
TI The propensity of alkoxide and aryloxide derivatives of tungsten carbonyls to aggregate in solution. Synthesis and x-ray structures of dinuclear, trinuclear and tetranuclear complexes derived from the MeOW(CO)₅- anion
AU Darensbourg, Donald J.; Klausmeyer, Kevin K.; Draper, Jennifer D.; Chojnacki, Jennifer A.; Reibenspies, Joseph H.
CS Department of Chemistry, Texas A&M University, College Station, TX, 77843-3255, USA
SO Inorganica Chimica Acta (1998), 270(1,2), 405-413
CODEN: ICHAA3; ISSN: 0020-1693
PB Elsevier Science S.A.
DT Journal
LA English
AB [Et₄N][W(CO)₅OMe] (1) was prepd. from the reaction of the photochem. generated W(CO)₅THF adduct and [Et₄N][OH] in methanol. Complex 1 was shown to undergo rapid CO dissocn. in THF to quant. provide the dimeric dianion, [W(CO)₄OMe]₂²⁻. The resulting THF insol. salt [Et₄N]₂[W(CO)₄OMe]₂ (2) was structurally characterized by x-ray crystallog., with the doubly bridging methoxide ligands being in an anti configuration. Complex 2 was found to subsequently react with excess methoxide ligand in a THF slurry to afford the face-sharing octahedron complex [Et₄N]₃[W₂(CO)₆(OMe)₃] (3) which contains three doubly bridging methoxide groups. In the absence of excess methoxide ligand complex 2 cleanly yields tetrameric [Et₄N]₄[W(CO)₃OMe]₄ (4) which was structurally characterized as a cubane-like arrangement with triply bridging .mu.₃-methoxide groups and W(CO)₃ units. Although complex 3 was not characterized in the solid state, the closely related glycolate deriv. [Et₄N]₃[W₂(CO)₆(OCH₂CH₂OH)₃] (5) was synthesized and its structure detd. by x-ray crystallog. The trianions of complex 5 are linked in the crystal lattice by strong intermol. hydrogen bonds. Crystal data for 2: space group P2₁/n, a 7.696(2), b 22.019(4), c 9.714(2) .ANG., .beta. 92.22(3).degree., Z = 4, R = 6.43%. Crystal data for 4: space group Fddd, a 12.433(9), b 24.01(2), c 39.29(3) .ANG., Z = 8, R = 8.13%. Crystal data for 5: space group P2₁2₁2₁, a 11.43(2), b 12.91(1), c 29.85(6) .ANG., Z =

8, R = 8.29%. Finally, the rate of CO ligand dissocn. in the closely related aryloxy derivs. [Et4N][W(CO)5OR] (R = C6H5 and 3,5-F2C6H3) are 2.15 .times. 10-2 and 1.31 .times. 10-3 s-1, resp., in THF soln. at 5.degree.. Hence, the value of the rate const. of 2.15 .times. 10-2 s-1 establishes a lower limit for the 1st-order rate const. for CO loss in the W(CO)5OMe- anion, since the methoxide ligand is a better .pi.-donating group than phenoxide.

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1996:331028 CAPLUS

DN 125:130713

TI Organometallic alkylthiolate-bridged manganese cubanes

AU Reyes-Lezama, Marisol; Toscano, Ruben A.; Zuniga-Villarreall, Noe

CS Instituto de Quimica, UNAM, Circuito Exterior, Ciudad Universitaria, Coyoacan, 04510, Mex.

SO Journal of Organometallic Chemistry (1996), 517(1-2), 19-23

CODEN: JORCAI; ISSN: 0022-328X

PB Elsevier

DT Journal

LA English

AB The thermal reaction of tricarbonyl-.eta.5-pentadienylmanganese 1, with mercaptans RSH leads to the corresponding tetramers [MnSR(CO)3]4 (R = Ph 2, furfuryl 3, and phenethyl 4). Synthetic and spectroscopic aspects, as well as the single crystal x-ray structure of 3, are discussed.

L4 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1995:842811 CAPLUS

DN 123:305045

TI Synthesis, Characterization, and Molecular Orbital Analysis of [Et4N]2[(OC)5MoAsMo3(CO)9(.mu.3-OR)3Mo(CO)3] (R = Me, Et). X-ray Structure of [Et4N]2[(OC)5MoAsMo3(CO)9(.mu.3-OMe)3Mo(CO)3].cntdot.0.6thf

AU van Hal, Jaap W.; Whitmire, Kenton H.; Zouchoune, Bachir; Halet, Jean-Francois; Saillard, Jean-Yves

CS Dep. Chem., Rice Univ., Houston, TX, 77251, USA

SO Inorganic Chemistry (1995), 34(22), 5455-60

CODEN: INOCAJ; ISSN: 0020-1669

PB American Chemical Society

DT Journal

LA English

AB NaAsO2 reacts with Mo(CO)6 in refluxing MeOH or EtOH to yield [Et4N]2[(OC)5MoAsMo3(CO)9(.mu.3-OR)3Mo(CO)3] (R = Me, [Et4N]2[Ia]; R = Et, [Et4N]2[Ib]). [Et4N]2[Ia] crystallizes as the THF solvate, [Et4N]2[Ia].cntdot.0.6THF, in space group P21/n, with a 12.0420(46), b 25.7455(81), c 18.1991(56) .ANG., .beta. 94.277(28).degree., and V = 5626(5.9) .ANG.3, and was refined on F2 to wR2 = 0.1802 and a conventional R1 = 0.0836. [Ia]2- is built around a tetrahedral AsMo3 core. A Mo(CO)3 fragment is bonded to the Mo3 base via three triply bridging methoxy ligands. The structure is completed by a Mo(CO)5 fragment which is bonded to the lone pair of the As. The compd. does not obey the usual electron-counting rules, and extended Hueckel calcns. on an idealized model with C3v symmetry showed that the extra electron pair is located in an a2 orbital, equally delocalized over the three Mo atoms of the Mo3 base.

L4 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1995:715227 CAPLUS

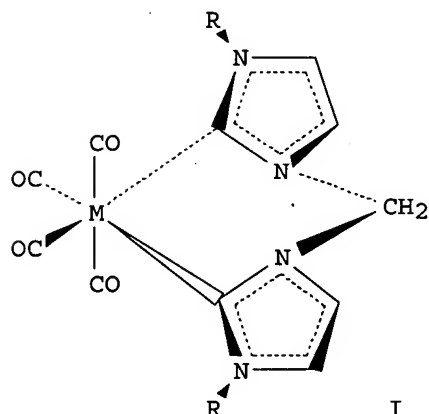
DN 123:286221

TI Heterocyclic Carbenes IV. Metal complexes with heterocyclic Carbene Ligands: Syntheses, Structures and Molecular Dynamics

AU Oefele, Karl; Herrmann, Wolfgang A.; Mihalios, Dimitrios; Elison, Martina; Herdtweck, Eberhardt; Priemeier, Thomas; Kiprof, Paul

CS Anorganisch-chemisches Institut der Technischen Universitaet Muenchen,

Lichtenbergstrasse 4, Garching b. Munchen, D-85747, Germany
 SO Journal of Organometallic Chemistry (1995), 498(1), 1-14
 CODEN: JORCAI; ISSN: 0022-328X
 PB Elsevier
 DT Journal
 LA German
 OS CASREACT 123:286221
 GI



AB Group-VI transition metal complexes of heterocyclic carbene ligands were obtained in 41-45% yields through reaction of azolium precursor salts with carbonyl metalates. Dicarbene complexes $\text{cis-M}(\text{CO})_4(\text{L-L})$ (e.g., I, R = Me) and $\text{fac-M}(\text{CO})_3(\text{L})_3$ (M = Cr, Mo, W) were obtained by optimal choice of the heterocyclic azolinyliidene ligands (I = imidazolinyliidene, I-I = imidazolinyliidene-methylene-imidazolinyliidene, and I-BI = imidazolinyliidene-methylene-benzimidazolinyliidene) with respect to their donor and acceptor properties. These complexes reflect the electronic properties of their carbene ligands. The W complex $\text{cis-W}(\text{CO})_4(\text{I-BI})$, exhibiting a mixed-carbene chelate ligand, and the Mo complex, representative of the 1st example of a tris(carbene) complex $\text{fac-Mo}(\text{CO})_3(\text{I})_3$, were characterized by single crystal x-ray diffraction studies. Substituted complexes $\text{fac-Mo}(\text{CO})_3(\text{L L})\text{L}'$ (L' = pyridine, PPh_3 , $\text{P}(\text{OCH}_3)_3$, tBu-NC , I) were synthesized and structurally characterized for the example of $\text{fac-M}(\text{CO})_3(\text{L L})[\text{PPh}_3]$. Low-temp. NMR-spectroscopy reveals a dynamic behavior for certain chelating dicarbene ligands, which process implies a butterfly-type conformational movement.

L4 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1995:337468 CAPLUS

DN 122:265560

TI Reactions of Primary Amines with (η^5 -Pentadienyl)- and (η^5 -Methylpentadienyl)tricarbonylmanganese Complexes. Synthesis, Characterization, and Structural Studies

AU Paz-Sandoval, M. Angeles; Sanchez Coyotzi, Rosalina; Zuniga Villareal, Noe; Ernst, Richard D.; Arif, Atta M.

CS Centro de Investigacion y de Estudios Avanzados, Instituto Politecnico Nacional, Mexico City, 07000, Mex.

SO Organometallics (1995), 14(2), 1044-52

CODEN: ORGND7; ISSN: 0276-7333

PB American Chemical Society

DT Journal

LA English

OS CASREACT 122:265560

AB Reactions of primary amines with (η^5 -pentadienyl)tricarbonylmanganese (1) were studied and compared with analogous secondary amine and phosphine

reactions. Cyclohexylamine reacts with 1 to give isomeric [1-(cyclohexylamino)(2-4-.eta.3)-pentenyl]tricarbonylmanganese, $\text{Mn}[\text{NH}(\text{C}_6\text{H}_{11})(\text{CH}_2\text{-.eta.3-CHCHCHMe})](\text{CO})_3$ (2) and the 1-(cyclohexylamino)(1-3-.eta.3)-pentenyl complex $\text{Mn}[\text{NH}(\text{C}_6\text{H}_{11})(\text{.eta.3-CHCHCHEt})](\text{CO})_3$ (4). In both cases, N is added regioselectively to the terminal C atom on the pentadienyl ligand and also becomes coordinated to the Mn atom. In the case of the isopropyl- and tert-butylamines, the reactions with complex 1 form exclusively [1-amino-(1-3-.eta.3)-pentenyl]tricarbonylmanganese complexes $\text{Mn}[\text{NH}(\text{R})(\text{.eta.3-CHCHCHEt})](\text{CO})_3$ (R = i-Pr (5), t-Bu (6)), while mixts. of $\text{Mn}[\text{NH}(\text{R})(\text{.eta.3-CHCHCHPr})](\text{CO})_3$ (R = i-Pr (11), t-Bu (12)) and $\text{Mn}[\text{NH}(\text{R})(\text{.eta.3-CMeCHCHEt})](\text{CO})_3$ (R = i-Pr (11'), R = t-Bu (12')) regioisomers are obtained from the reaction with (.eta.5-methylpentadienyl)tricarbonylmanganese (10), except for the case of R = cyclohexyl, from which the 1-cyclohexyl-(1-3)-.eta.3-hexenyl complex $\text{Mn}[\text{NH}(\text{C}_6\text{H}_{11})(\text{.eta.3-CHCHCHPr})](\text{CO})_3$ 13 is obtained. The conversion from 11', 12' to 11, 12, resp., suggests that 11' and 12' are the kinetic and 11 and 12 the thermodyn. products in these reactions. Compd. 2 represents a formal 1,5-addn. product to the pentadienyl ligand and is structurally novel for the amine addn. compds. Its x-ray crystal anal. revealed that the cyclohexylamine group has coupled to the pentadienyl group, leading to a 1-cyclohexylamino-(2-4-.eta.3)-pentenyl fragment coordinated through the N atom and the allyl moiety to the Mn atom. This structure is similar to that for the P analog. The crystals of 2 are orthorhombic, space group P212121, with a 7.449(5), b 12.572(2), c 16.350(3) .ANG. (Z = 4). The structure was refined to discrepancy indexes of R = 0.0402 and Rw = 0.0460 for 1046 reflections having I > 3.sigma.(I). From differences in bond lengths and angles apparently the strain induced by coordination of the enyl-amine ligand is much lower than that resulting for the analogous enyl-phosphine complex. Single-crystal x-ray diffraction studies of 5 and 6 show that their aminopentenyl ligands are bonded to Mn through an .eta.3 interaction and also by N coordination. Compd. 5 crystallizes in the monoclinic space group P21/c, with a 10.308(3), b 10.935(2), c 12.359(2) .ANG., .beta. 110.56(2).degree. (Z = 4); R = 0.0306 and Rw = 0.0324 for 1614 reflections with I > 3.sigma.(I). Crystals of 6 are orthorhombic, space group Pbca with a 7.197(1), b 18.879(2), c 20.561(3) .ANG. (Z = 8); R = 0.0524 and Rw = 0.0569 for 1037 reflections with I .gtoreq. 3.sigma.(I). The two complexes have distorted-octahedral geometries without significant differences relative to analogous secondary amine derivs. Complexes 4-6 and 11-13 proved to be more reactive species than the corresponding aminopentenyl derivs. derived from secondary amines.

L4 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1994:218101 CAPLUS

DN 120:218101

TI Multiple bonds between Main-Group elements and transition metals. CXXVI. Heterocyclene-carbenes as phosphine-analog ligands in metal complexes

AU Oefele, Karl; Herrmann, Wolfgang A.; Mihalios, Dimitrios; Elison, Martina; Herdtweck, Eberhardt; Scherer, Wolfgang; Mink, Janos

CS Lehrstuhl fuer Anorganische Chemie I, Anorganisch-chemisches Institut der Technischen Universitaet Muenchen, Lichtenbergstrasse 4, D-85747 Garching b., Munchen, Germany

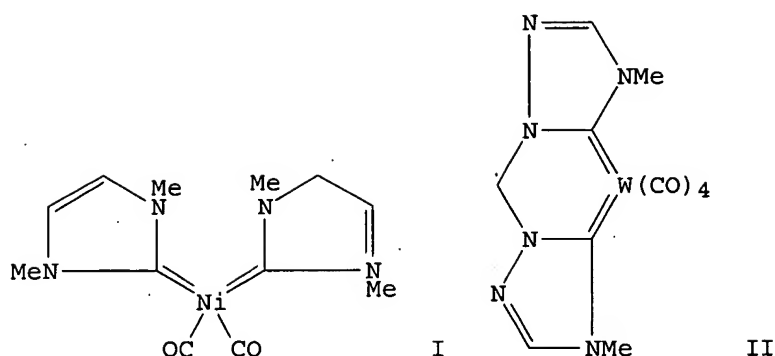
SO Journal of Organometallic Chemistry (1993), 459(1-2), 177-84
CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA German

OS CASREACT 120:218101

GI



AB Carbenes L derived from imidazole and triazole, as generated from the corresponding azolium precursor salts, smoothly react with simple metal carbonyls such as $M(CO)_6$ ($M = Cr, Mo, W$), $Fe(CO)_5$, and $Ni(CO)_4$ to give the substitution products $M(CO)_5L$, $Fe(CO)_4L$, $Ni(CO)_3L$, and $Ni(CO)_2L_2$, resp., owing to the pronounced C-nucleophilicity of the free carbenes L. Dicarbenes LL form chelate complexes of type $M(CO)_4(LL)$ upon treatment with $M(CO)_6$ ($M = Cr, Mo, W$). The new bis(carbene)nickel(0) complex $Ni(CO)_2L_2$ (I) and the first member of a metal complex $M(CO)_4(LL)$ (II) exhibiting a chelating dicarbene of the triazole series were characterized by x-ray crystallog. Thus, heterocyclic mono- and (chelating) dicarbenes of the aza-type are congeners of phosphines and diphosphines, resp., with regard to their metal-coordination chem. Both in terms of ligand properties and metal complex synthesis, they closely resemble electron-rich phosphines, e.g., trimethylphosphine.

L4 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1993:419267 CAPLUS

DN 119:19267

TI Synthesis and x-ray crystal structure of a tetrahedral bismuth-molybdenum carbonyl complex possessing three bridging methoxy ligands, $[Et_4N]_2[BiMo_4(CO)_{12}(\mu_3-O)_3]$

AU Shieh, Minghuey; Mia, Fu Der; Peng, Shie Ming; Lee, Gene Hsiang

CS Dep. Chem., Natl. Taiwan Norm. Univ., Taipei, 11718, Taiwan

SO Inorganic Chemistry (1993), 32(12), 2785-7

CODEN: INOCAJ; ISSN: 0020-1669

DT Journal

LA English

AB When $NaBiO_3$ reacts with $Mo(CO)_6$ in MeOH, $[BiMo_4(CO)_{12}(\mu_3-O)_3]^{2-}$ is obtained. $[Et_4N]_2[BiMo_4(CO)_{12}(\mu_3-O)_3] \cdot CH_2Cl_2$ (1) was characterized by IR, 1H NMR spectra, and single crystal x-ray diffraction. The anionic nucleus consists of a tetrahedral $BiMo_3$ cluster with an external Mo atom linked to the Mo_3 triangle by 3 μ_3-O ligands; each Mo atom in the tetrahedron is 8 coordinate, while the external Mo atoms is assocd. with 6. 1 Crystallizes as monoclinic, space group $P2_1/n$, a 13.615(4), b 19.035(6), c 19.087(6), β 103.58(3)°, $Z = 4$, $R = 0.049$, $R_w = 0.048$. The electron count and some reactivity of 1 are discussed.

L4 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1987:415337 CAPLUS

DN 107:15337

TI Organosulfide group transfer reactions of transition-metal carbonyl radicals: electronic and steric effects

AU Lee, Kang Wook; Brown, Theodore L.

CS Sch. Chem. Sci., Univ. Illinois, Urbana, IL, 61801, USA

SO Inorganic Chemistry (1987), 26(12), 1852-6

CODEN: INOCAJ; ISSN: 0020-1669

DT Journal

LA English

AB Photochem. reactions of $M_2(CO)_{10}$ ($M = Mn, Re$) with $RSSR$ ($R = Me, Ph$) or $MeSSiMe_3$ in hexane at ambient temp. yield $(\mu-SR)_2M_2(CO)_8$ (70-85%) and $[M(CO)_3SR]_4$ (0-15%). The corresponding reaction of $Re_2(CO)_8L_2$ almost quant. yields $(\mu-SR)_2Re_2(CO)_6L_2$, and the reaction of $Re_2(CO)_{10}$ and $[Me_2NC(S)S]_2$ gives $(\eta^2-S_2CNMe_2)Re(CO)_4$. The initial product for each reaction is $RSM(CO)_4L$ ($L = CO, PR_3$), formed by RS group transfer from $RSSR$ to the $\cdot M(CO)_4L$ radical generated by photolysis. $(\mu-SR)_2M_2(CO)_8$ is in equil. with the 16-electron species $RSM(CO)_4$ under photochem. conditions. Laser flash photolysis kinetics studies reveal the electronic and steric effects of L ligands in the $Re(CO)_4L\cdot$ radical and the steric effect of the R group in $RSSR$ on the group transfer rate const. The relative rate consts. for reactions of $Re(CO)_4PMe_3\cdot$ with various dialkyl disulfides decrease in the order $Me > n-Bu > sec-Bu > tert-Bu$ (630:280:36:1). The rate consts. for group transfer for a series of $Re(CO)_4L\cdot$ radicals fit a 2-parameter free energy relation wherein the electronic and the steric parameters of L are represented. The reaction is accelerated by increased electron donor capability of L and retarded by increased size of L .

L4 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1986:60991 CAPLUS

DN 104:60991

TI Reactions of the carbido cluster anion $[Re_7C(CO)_{21}]^{3-}$ with Group IB metals: x-ray crystal structure of the novel heterometallic carbide $[{Re_7AgC(CO)_{21}}]^{2-}Br^{+}$

AU Beringhelli, T.; D'Alfonso, G.; Freni, M.; Ciani, G.; Sironi, A.

CS Dip. Chim. Inorg. Metallorg., Univ. Milano, Milan, 20133, Italy

SO Journal of Organometallic Chemistry (1985), 295(1), C7-C10

CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA English

AB $[Re_7C(CO)_{21}]^{3-}$ reacts with $AuClPPh_3$, $(AgClPPh_3)_4$, $AgBF_4$ and $[Cu(NCMe)_4]PF_6$ to give adducts exhibiting a Re_7M ($M = Cu, Ag, Au$) skeleton, of trans-bicapped octahedral geometry. Crystals of $[{Re_7AgC(CO)_{21}}]^{2-}(NBu_4)^+$ are monoclinic, space group $P2_1/n$, with a 22.302(6), b 22.701(5), c 30.997(7) Å, β 95.07(2)°, $Z = 4$, and R (R_w) = 0.050(0.045) for 5132 independent reflections with $I > 3\sigma(I)$.

L4 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1984:156751 CAPLUS

DN 100:156751

TI Synthesis, structure, and reactivity of a polynuclear chromium tetraanion, tetrakis[(μ^3 -methoxo)tricarbonylchromate(0)]

AU McNeese, Timothy J.; Cohen, Maurice B.; Foxman, Bruce M.

CS Dep. Chem., Loyola Coll., Baltimore, MD, 21210, USA

SO Organometallics (1984), 3(4), 552-6

CODEN: ORGND7; ISSN: 0276-7333

DT Journal

LA English

AB Reaction of $Cr(CO)_6$ with excess OH^- in refluxing $MeOH$ yields a polynuclear Cr tetraanion, $[Cr_4(CO)_{12}(\mu^3-OMe)_4]^{4-}$ (I), isolated as its R_4N^+ ($R = Me, Et$) salt. The x-ray structure of $[Et_4N]_4[Cr_4(CO)_{12}(\mu^3-OMe)_4]$ was detd. I consists of a distorted cubic Cr_4O_4 arrangement with triply bridging μ^3-OMe groups and $Cr(CO)_3$ units. A nonbonding $Cr-Cr$ distance of 3.31 (6) Å (av.) is consistent with a closed-shell metal configuration. $(MeCN)_3Cr(CO)_3$ is formed as the exclusive product when I is treated with HCl in $MeCN$. Addn. of I to concd. NH_4OH quant. yields $Cr(CO)_3(NH_3)_3$.

L4 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1982:227932 CAPLUS

DN 96:227932

TI Evidence for the formation of a formatomolybdate $[Mo(O_2CH)(CO)_5]^-$ during

the water gas shift reaction induced by molybdenum hexacarbonyl in basic media

AU Attali, S.; Mathieu, R.; Leigh, G. J.

CS Lab. Chim. Coord., Univ. Paul Sabatier, Toulouse, 31400, Fr.

SO Journal of Molecular Catalysis (1982), 14(3), 293-5

CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

AB The anion $[\text{Mo}(\text{O}_2\text{CH})(\text{CO})_5]^-$ is formed during the water gas shift reaction in basic media, and this anion is a likely catalytic intermediate in the water gas shift reaction under such conditions.

L4 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1982:192318 CAPLUS

DN 96:192318

TI Synthesis and characterization of zerovalent polynuclear metal carbonyl compounds of chromium, molybdenum, and tungsten. X-ray crystal structure of $[\text{Me}_4\text{N}]_3[\text{W}_3(\text{CO})_9(\mu\text{-OC}_2\text{H}_5)(\mu\text{-OC}_2\text{H}_5)_2]$

AU Ellis, John E.; Rochfort, Gary L.

CS Dep. Chem., Univ. Minnesota, Minneapolis, MN, 55455, USA

SO Organometallics (1982), 1(5), 682-9

CODEN: ORGND7; ISSN: 0276-7333

DT Journal

LA English

AB Compds. of the general formula $[\text{NR}_4]_n[\text{M}(\text{CO})_3(\text{XR})]_n$ ($n = 3$ or 4) ($\text{M} = \text{Cr}, \text{Mo}, \text{W}$; $\text{XR} = \text{OMe}, \text{OEt}, \text{SPh}$) were prepd. by refluxing the corresponding $\text{M}(\text{CO})_3\text{PMTA}$ ($\text{PMTA} = 1,1,4,7,7$ -pentamethyldiethylenetriamine) with the appropriate NaXR in THF, followed by metathesis with tetramethyl- or tetraethylammonium halides. Treatment of $\text{W}(\text{CO})_3\text{PMTA}$ or $\text{W}(\text{CO})_3(\text{CH}_3\text{CN})_3$ with NaOPh provides after cation exchange a substance formulated as $[\text{Et}_4\text{N}]_3[\text{W}_2(\text{CO})_6(\mu\text{-OPh})_3]$. These complexes were characterized by IR and NMR spectra and elemental analyses. Also, the product obtained from the reaction of NaOEt with $\text{W}(\text{CO})_3\text{PMTA}$ followed by metathesis with Me_4NBr was characterized by a single-crystal x-ray structure detn. This material has the formula $[\text{Me}_4\text{N}]_3[\text{W}_3(\text{CO})_9(\mu\text{-OEt})(\mu\text{-OEt})_2]$. The anion contains a highly unsym. metal triangle which is best considered to contain only 1 W-W bond. The mol. crystallizes in space group Cc (No. 9) with 2 crystallog. independent mols. in the unit cell. Crystal data: $a = 14.831(4)$, $b = 41.686(14)$, $c = 12.905(3)$.ANG., .beta. $90.74(4)$.degree., $Z = 4$, $V = 7978(7)$.ANG.³, and .rho. (calcd) = 1.848 g/cm^3 .

L4 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1979:432018 CAPLUS

DN 91:32018

TI Syntheses, structures, and reactions of trimeric and tetrameric alkoxotricarbonylmanganese complexes

AU Abel, Edward W.; Farrow, Graham; Towle, Ian D. H.

CS Dep. Chem., Univ. Exeter, Exeter, UK

SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1979), (1), 71-3

CODEN: JCDBTI; ISSN: 0300-9246

DT Journal

LA English

AB $\text{MnBr}(\text{CO})_5$ reacts with ROSnMe_3 ($\text{R} = \text{Me}, \text{Et}, \text{Pr}, \text{CHMe}_2, \text{Bu}, \text{cyclohexyl}, \text{CH}_2\text{CH}:\text{CH}_2, \text{CH}_2\text{Ph}$) to give $[\text{Mn}(\text{OR})(\text{CO})_3]_3$ and $[\text{Mn}(\text{OCH}_2\text{Ph})(\text{CO})_3]_4$. The structure of the trimers is based on a scalene triangle of Mn atoms in which only one of the sides is a Mn-Mn bond, with face- and edge-bridging alkoxide groups. The tetramer is a cube of Mn and O atoms with only face-bridging alkoxide groups. $[\text{Mn}(\text{OEt})(\text{CO})_3]_3$ reacts with PMe_2Ph , PhOH , and PhSH , to give $\text{Mn}_3(\text{OEt})_3(\text{CO})_8(\text{PMe}_2\text{Ph})$, $\text{Mn}_3(\text{OEt})_2(\text{OPh})(\text{CO})_9$, and $[\text{Mn}(\text{SPh})(\text{CO})_3]_4$, resp.

L4 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2003 ACS

AN 1979:132002 CAPLUS

DN 90:132002
 TI Tetranuclear tricarbonylrhenium complexes with oxygen-containing bridging ligands
 AU Herberhold, Max; Suess, Georg; Ellermann, Jochen; Gaebel, Helmut
 CS Anorg.-Chem. Inst., Tech. Univ. Muenchen, Munich, Fed. Rep. Ger.
 SO Chemische Berichte (1978), 111(8), 2931-41
 CODEN: CHBEAM; ISSN: 0009-2940
 DT Journal
 LA German
 AB The reaction of either $\text{Re}_2(\text{CO})_{10}$ or $\text{Re}(\text{CO}_5)\text{Cl}$ with H_2O at 200.degree. gives $[\text{Re}(\text{CO})_3(\text{OH})]_4$ (I). A pseudocubane structure without metal-metal bonds and in which the $\text{Re}(\text{CO})_3$ groups are linked by triply bridging OH ligands is proposed for I. Substitution of the H atoms in I gives $[\text{Re}(\text{CO})_3\text{OR}]_4$ (R = Me, Et). Deuteration of I in D_2O /ether gives the adduct $[\text{Re}(\text{CO})_3\text{OD.OEt}_2]_4$ and metalation with Li gives the salt $[\text{Re}(\text{CO})_3\text{O-Li}]_4$ which is stable in THF soln. for a short time only. Lewis bases (L) are attached to I via H bonds to give $[\text{Re}(\text{CO})_3\text{OH.L}]_4$ (L = THF, OPPh_3 , Et_4NBr), which are very stable. The IR and Raman spectra of I and its derivs. are discussed.

L4 ANSWER 17 OF 25 CAPLUS COPYRIGHT 2003 ACS
 AN 1976:188830 CAPLUS
 DN 84:188830
 TI Transformation of sulfur-bridged carbonyl complexes of manganese and rhenium and carbon monoxide under pressure
 AU Kuellmer, Volker; Vahrenkamp, Heinrich
 CS Chem. Lab., Univ. Freiburg, Freiburg/Br., Fed. Rep. Ger.
 SO Chemische Berichte (1976), 109(4), 1569-71
 CODEN: CHBEAM; ISSN: 0009-2940
 DT Journal
 LA German
 AB $[(\text{CO})_3\text{MSR}]_4$ (M = Mn, Re; R = Me, H) in CCl_4 react under CO pressure to give $[(\text{CO})_4\text{MSR}]_2$, whereas $[(\text{CO})_4\text{MSR}]_2$ (R = H, C_6F_5) react under CO pressure to give $(\text{CO})_5\text{MSR}$. The compds. were identified by IR spectra.

L4 ANSWER 18 OF 25 CAPLUS COPYRIGHT 2003 ACS
 AN 1975:600144 CAPLUS
 DN 83:200144
 TI Carbonylrhenium cluster by photoreaction of decacarbonyldirhenium with water
 AU Herberhold, Max; Suess, Georg
 CS Anorg.-Chem. Inst., Tech. Univ. Muenchen, Munich, Fed. Rep. Ger.
 SO Angewandte Chemie (1975), 87(19), 710
 CODEN: ANCEAD; ISSN: 0044-8249
 DT Journal
 LA German
 AB The photolysis of decacarbonyldirhenium, $\text{Re}_2(\text{CO})_{10}$, in aq. ether yields the known trinuclear hydrido complex, $[\text{Re}(\text{CO})_4\text{H}]_3$ (I), as well as the tetranuclear hydroxo complex $[\text{Re}(\text{CO})_3(\text{OH})]_4$ (II). During the reaction I is converted to II, so that after prolonged irradiation only II is obtained. II is colorless, stable in air, and not volatile in a high vacuum. The IR, NMR, and mass spectra indicate that II is a tetranuclear, tetrahedral tricarbonylrhenium complex.

L4 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2003 ACS
 AN 1972:159625 CAPLUS
 DN 76:159625
 TI Crystal and molecular structure of tetrakis[tricarbonyl-(mu)-(methanethiolato)rhenium]
 AU Harrison, W.; Marsh, W. C.; Trotter, J.
 CS Dep. Chem., Univ. British Columbia, Vancouver, BC, Can.
 SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1972), (10), 1009-11
 CODEN: JCOTBI; ISSN: 0300-9246

DT Journal
 LA English
 AB The structure of $[\text{Re}(\text{CO})_3(\text{SMe})]_4$ was detd. by x-ray anal. Crystals were trigonal, space group P3121, with a 10.07, c 25.92 .ANG., d.(exptl.) 2.80, and d.(calcd.) 2.78 for Z = 3. The structure was refined to R 0.054 for 812 obsd. reflections. The mol. lies on a crystallog. 2-fold axis. The Re atoms form an almost regular tetrahedron with each S atom equidistant from the 3 nearest Re atoms and the C-S bonds normal to the triangular faces of the tetrahedron. Re-S distances are 2.48-2.52 .ANG. and Re-Re distances are 3.853-3.957 .ANG. confirming the absence of any formal Re-Re bonding: any Re-Re interaction must be through the triply bridging S atoms.

L4 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2003 ACS
 AN 1971:35829 CAPLUS
 DN 74:35829
 TI Structure of organothio-metal tricarbonyl tetramers. X-ray analysis of $[\text{Re}(\text{CO})_3\text{SMe}]_4$
 AU Mclean, Ronald A. N.; Abel, Edward W.; Harrison, William; Marsh, Wayne C.; Trotter, James
 CS Dep. Chem., Univ. British Columbia, Vancouver, BC, Can.
 SO Journal of the Chemical Society [Section] D: Chemical Communications (1970), (22), 1531-3
 CODEN: CCJDAO; ISSN: 0577-6171

DT Journal
 LA English
 AB According to an x-ray diffraction study, $[\text{Re}(\text{CO})_3\text{SMe}]_4$ is trigonal, space group P3121, with a 10.07(1) and c 25.92(2) .ANG.; Z = 3. The structure is almost a regular tetrahedron with each S atom equidistant from the 3 nearest Re atoms and the C-S bonds normal to the triangular planes of the tetrahedron. The Re-Re distances are very long; thus, any interaction between the Re atoms is through the triply bridging S atoms.

L4 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2003 ACS
 AN 1969:119760 CAPLUS
 DN 70:119760
 TI Vibrational spectra and structures of the organothiotricarbonylrheniums and related species
 AU Abel, Edward W.; Hendra, Patrick J.; McLean, R. A. N.; Qurashi, M. M.
 CS Univ. Bristol, Bristol, UK
 SO Inorganica Chimica Acta (1969), 3(1), 77-80
 CODEN: ICHAA3; ISSN: 0020-1693

DT Journal
 LA English
 AB Ir and Raman spectra of $[\text{Re}(\text{CO})_3\text{X}]_4$ (X = SMe, SPh, and SePh) are reported. These have been assigned on the basis of Td symmetry by analogy with measurements on $\text{Ir}_4(\text{CO})_{12}$. This suggests that the compds. $[\text{Re}(\text{CO})_3\text{X}]_4$ have a tetrahedron of metal atoms with X over the center of the triangular faces. The absence of intense bands in the required region of the Raman spectrum of $[\text{Re}(\text{CO})_3\text{SMe}]_4$ lends support to the idea of little or no metal-metal interaction in such a structure.

L4 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2003 ACS
 AN 1969:33931 CAPLUS
 DN 70:33931
 TI Reactions of manganese and rhenium pentacarbonyl halides with sulfur-containing ligands
 AU Jenkins, C. R.
 CS Univ. Bristol, Bristol, UK
 SO Journal of Organometallic Chemistry (1968), 15(2), 441-5
 CODEN: JORCAI; ISSN: 0022-328X

DT Journal
 LA English
 AB The interaction of $\text{Mn}(\text{CO})_5\text{Br}$ and $\text{Re}(\text{CO})_5\text{Br}$ with 4,5-dicyano-2,2-dimethyl-

1,3-dithia-2-stannacyclopentene is reported. The reaction of the pentacarbonyl halides with (methylthio)- and (phenylthio)trimethylsilane has also been investigated and the possible structure of the products is discussed.

L4 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2003 ACS
AN 1969:24370 CAPLUS
DN 70:24370
TI Combination spectra: structure and bonding in
tetrakis(tricarbonylorganothiomanganese and -rhenium) compounds
AU Braterman, Paul S.
CS Univ. Glasgow, Glasgow, UK
SO Journal of the Chemical Society [Section] A: Inorganic, Physical,
Theoretical (1968), (12), 2907-9
CODEN: JCSIAP; ISSN: 0022-4944
DT Journal
LA English
AB Species of the type $[M(CO)_3SR]_x$ ($M = Mn, Re$) are shown from fundamental
and combination ir spectra to be tetrameric in soln. and to have a regular
tetrahedral structure with no metal-metal bonding.

L4 ANSWER 24 OF 25 CAPLUS COPYRIGHT 2003 ACS
AN 1968:39789 CAPLUS
DN 68:39789
TI Polynuclear organoselenium derivatives of manganese and rhenium carbonyl
AU Abel, Edward W.; Crosse, Brian C.; Hutson, G. V.
CS Univ. Bristol, Bristol, UK
SO Journal of the Chemical Society [Section] A: Inorganic, Physical,
Theoretical (1967), (12), 2014-17
CODEN: JCSIAP; ISSN: 0022-4944
DT Journal
LA English
AB Alkyl- and aryl-selenotin compds. react with pentacarbonyl halides of
manganese and rhenium to produce the dimeric $[M(CO)_4SeR]_2$ species, in
marked contrast to the corresponding reactions of Sn-S compds., which
produce the tricarbonyls $[M(CO)_3SR]_n$. Similar tricarbonyls $[M(CO)_3SeR]_n$,
believed to contain a cluster of metal atoms, are obtained by pyrolysis of
the tetracarbonyl species.

L4 ANSWER 25 OF 25 CAPLUS COPYRIGHT 2003 ACS
AN 1967:89450 CAPLUS
DN 66:89450
TI Mass spectra of inorganic molecules. III. Some transition-metal carbonyl
halide and thiol compounds
AU Edgar, K.; Johnson, Brian F. G.; Lewis, Jack; Williams, Ian Gabriel;
Wilson, John Miller
CS Univ. Manchester, Manchester, UK
SO Journal of the Chemical Society [Section] A: Inorganic, Physical,
Theoretical (1967), (3), 379-82
CODEN: JCSIAP; ISSN: 0022-4944
DT Journal
LA English
AB cf. CA 66, 60018j. The mass spectra of several transition-metal halides
and thiol derivs. have been investigated. With the monomeric compds.
 $Mn(CO)_5X$, $Re(CO)_5X$ ($X = Cl$ or I), and $Fe(CO)_4I_2$ the primary fragmentation
involves the loss of both CO and halogen. The halogen-bridged dimers,
 $Mn_2(CO)_8I_2$, $Re_2(CO)_8Cl_2$, $Re_2(CO)_8I_2$, and $Rh_2(CO)_4Cl_2$, and the related
thiol-bridged compds. $Fe_2(CO)_6S_2R_2$ ($R = Me, Et, Bu, \text{ or } Ph$), $Mn_2(CO)_8S_2R_2$
($R = Et$ or Bu), and $Re_2(CO)_8S_2Ph_2$ lose carbonyl groups preferentially with
the preservation of the M_2X_2 or M_2S_2 nucleus. Evidence is also presented
for the formation of tetrameric thiol compds. $M_4(CO)_{12}S_4R_4$ ($M = Mn, R = Et$
or Bu ; $M = Re, R = Ph$) and a trimeric Re compd. $Re_3(CO)_9S_3Ph_3$.